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Low Income Job Accessibility to SilverLine Extension (SLE) Job Center, Washington DC Metro Area

Sunhyeong Shin | Master of Urban Planning 2018
Advisor: Dr. Jesus Barajas
University of Illinois Urbana-Champaign

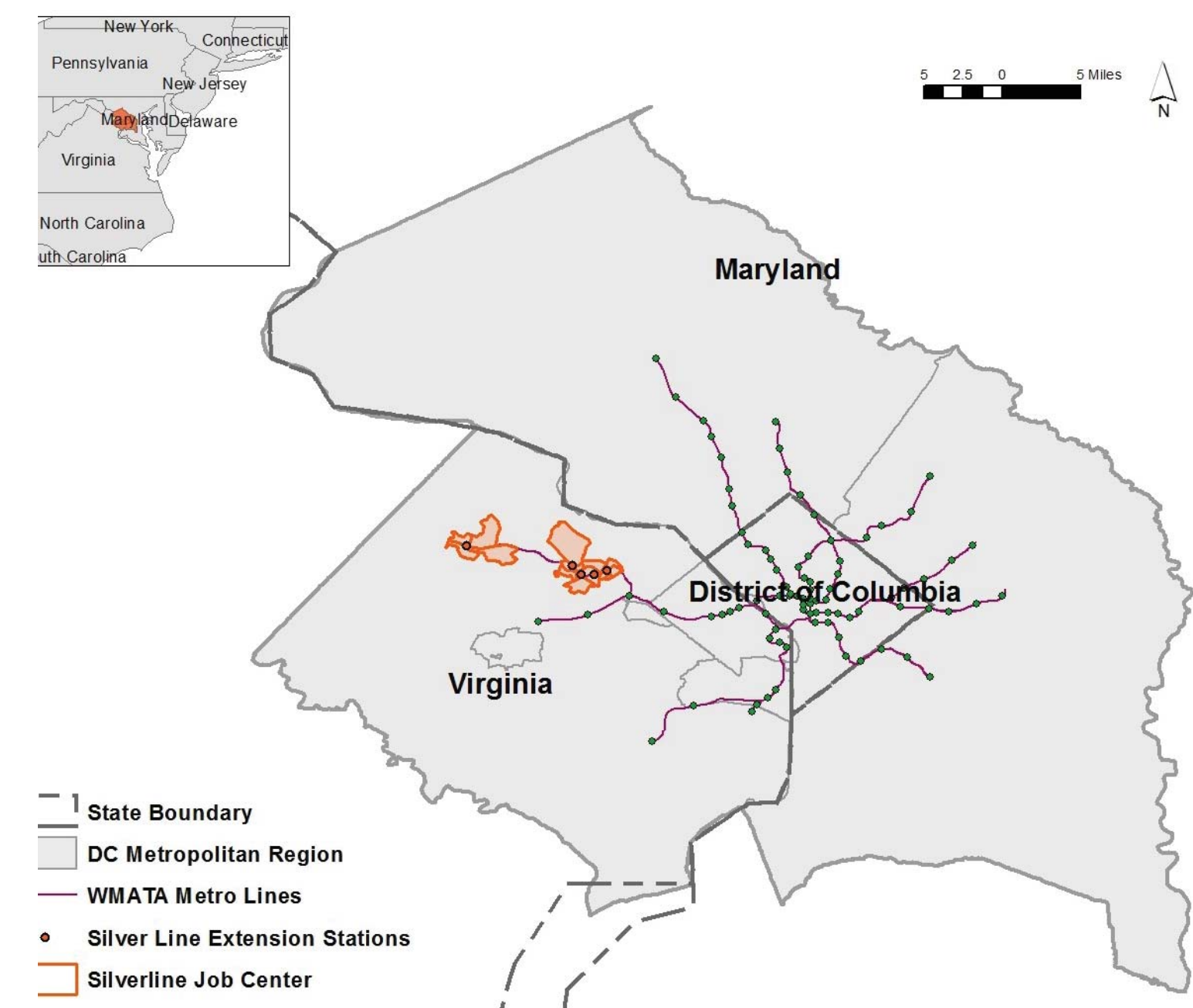
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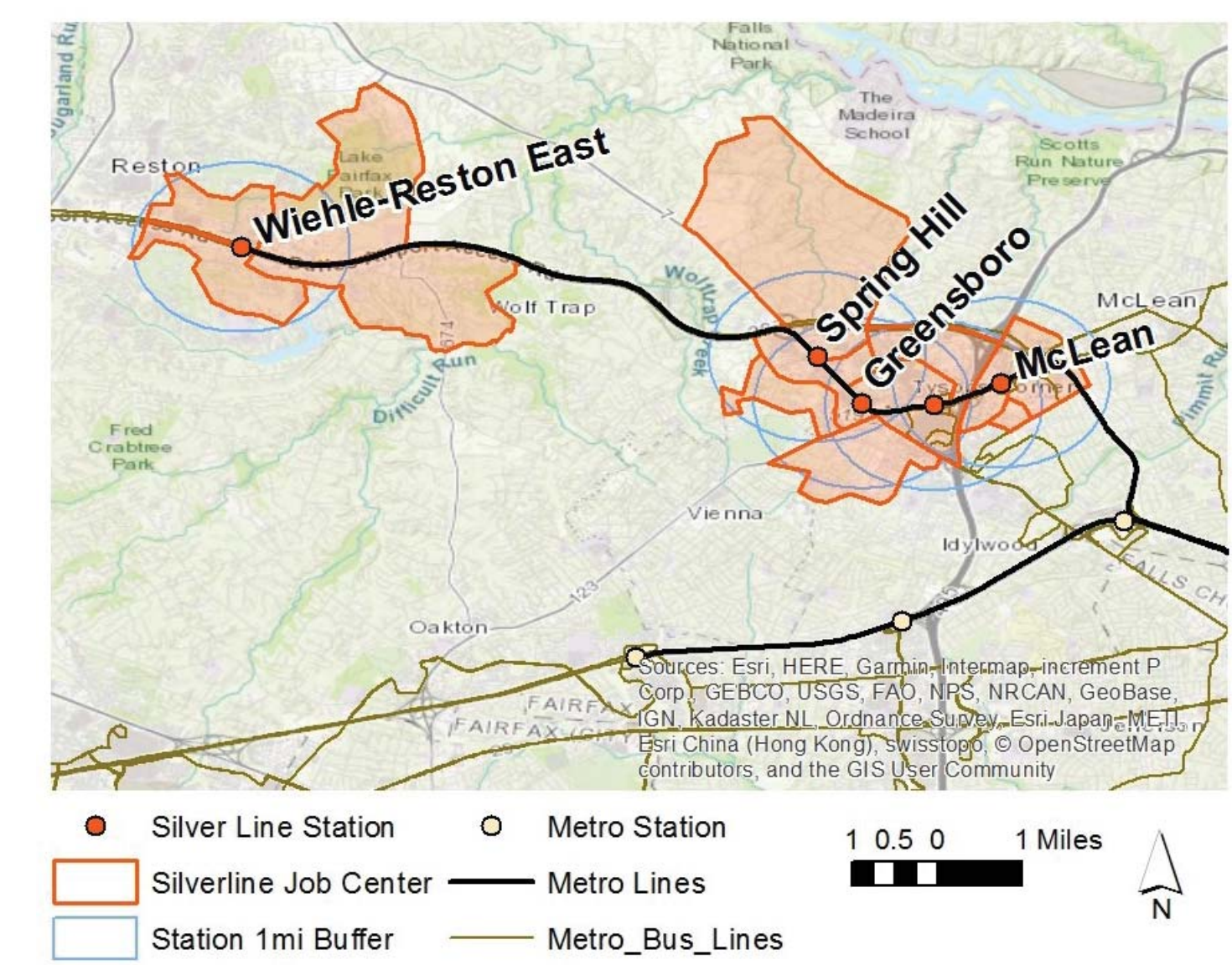
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1. Introduction

Starting point: Transportation Equity



Silverline Job Center



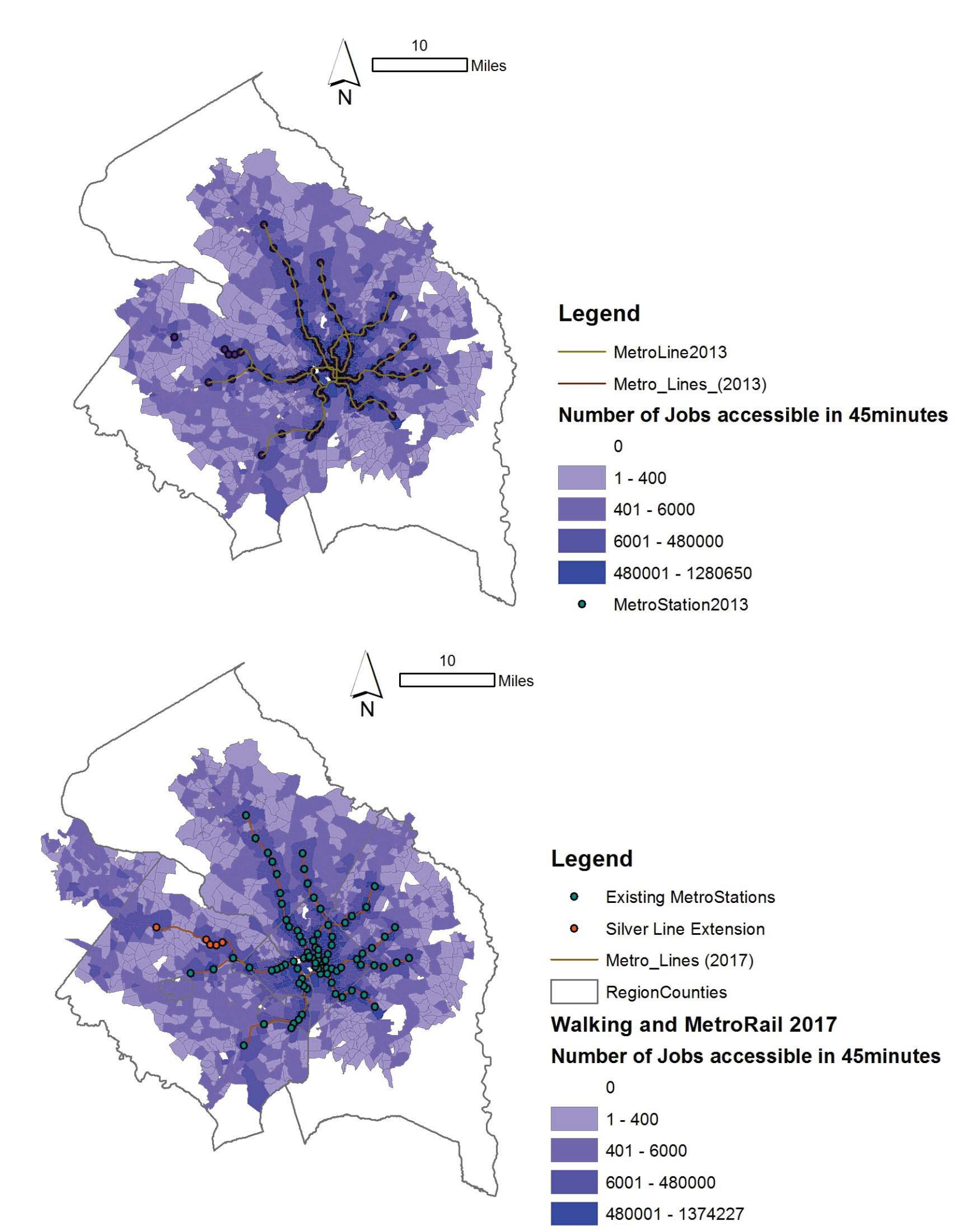
The phase 1 of the Silver Line Extensions are located at major Job Center in Virginia. The purpose of the project's analysis is to compare commuters from disadvantaged area versus not-disadvantaged area. Silverline Extension (SLE) connects Dulles Airport at the northwest of Fairfax County to the Washington DC.



- Silverline Extension opened in 2014.
- To compare the before & after the service, I set the time periods of analysis as 2013 and 2015.
- The five station-areas are Virginia's biggest regional job centers
- New access method by Metrorail to Tysons and Reston is likely to increase job accessibility for low-income workers
- Geographic boundary of analysis in employment/commute data is selected with Census Block Groups which intersect 0.25 mi radius of each station

Job Accessibility by MetroRail:

Number of jobs accessible by walking and Metro Rail in 45 minutes



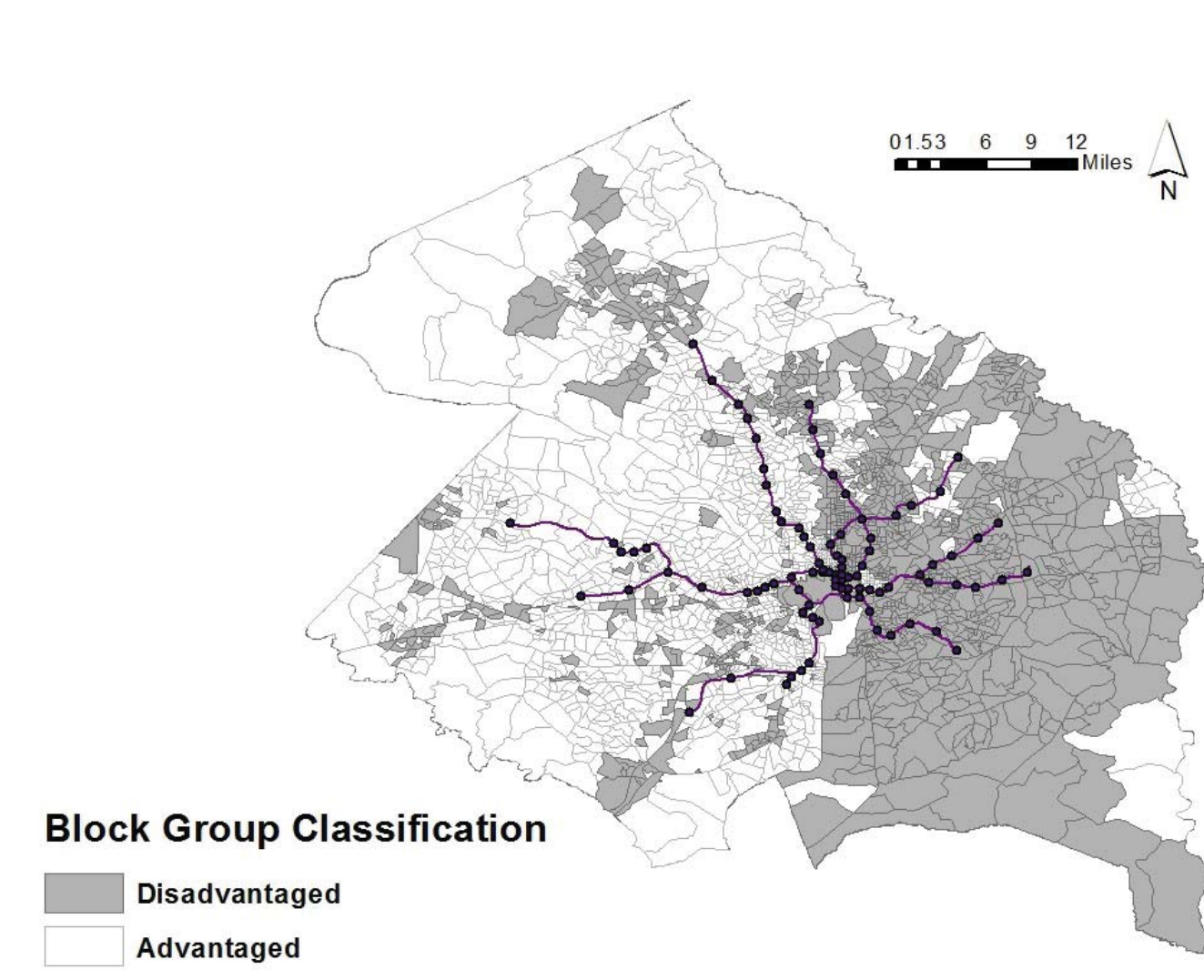
- The DC Metropolitan Area has Metrorail system with relatively urban pattern of development.
- The lower map is the percent change of the number of jobs accessible in 45 minutes between 2013 base year and 2017 projected year with Silverline Extension.
- The upper map shows the number of accessible jobs in 45 minutes by walking to access and by MetroRail in 2013.
- The west side of Silverline significantly improved job accessibility by metrorail.
- The maps sourced data from MWCOG Ver 2.3. 39 Travel Demand Model.

4. Policy Implication

- The result shows that low-income workers who live in disadvantaged area which is proximate to MetroRail Station increased more significantly than the disadvantaged area that does not have good access to MetroRail.
- Even if the Job center is mainly for highly educated workforce as the industrial characteristics, low-income type of workers are still necessary to be employed.
- As the result shows that SLE exhibited better access to low-income jobs, MetroRail service should particularly consider the residence location of low-income workers to provide better job accessibility by public transit for the benefit of the whole regional economy.

2. Method

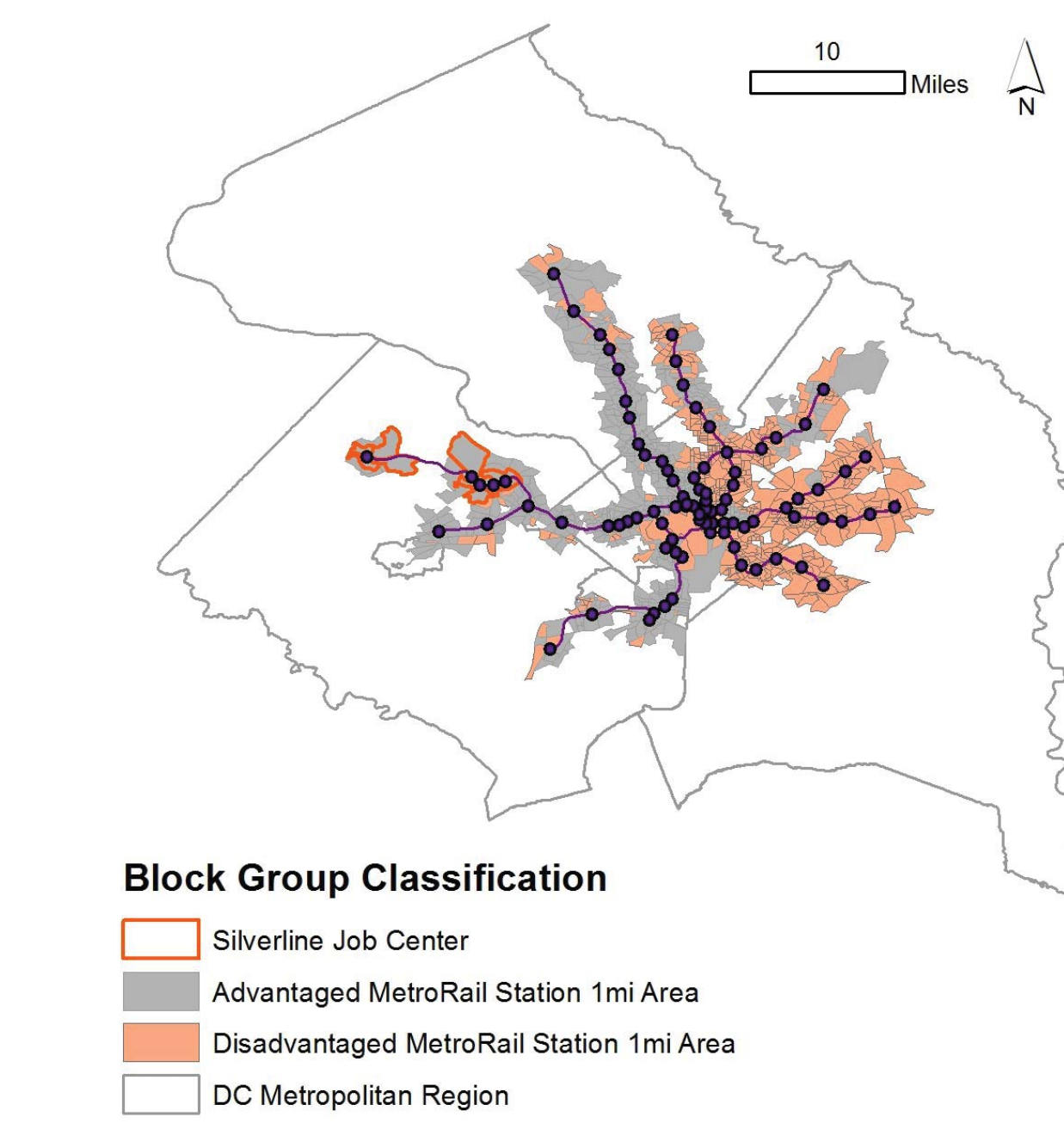
Step 1. Identify the Disadvantaged Area in the Region



Step 1.
To compare whether advantaged/disadvantaged area have different pattern in the number of low-income workers, I Identified disadvantaged blocks based on two categories.

1. More than 50 percent being racial minority demographics, and
2. Median household income being less than 80% of the Statewide Average Median Household Income

Step 2. Sample the MetroRail Station Proximate Area

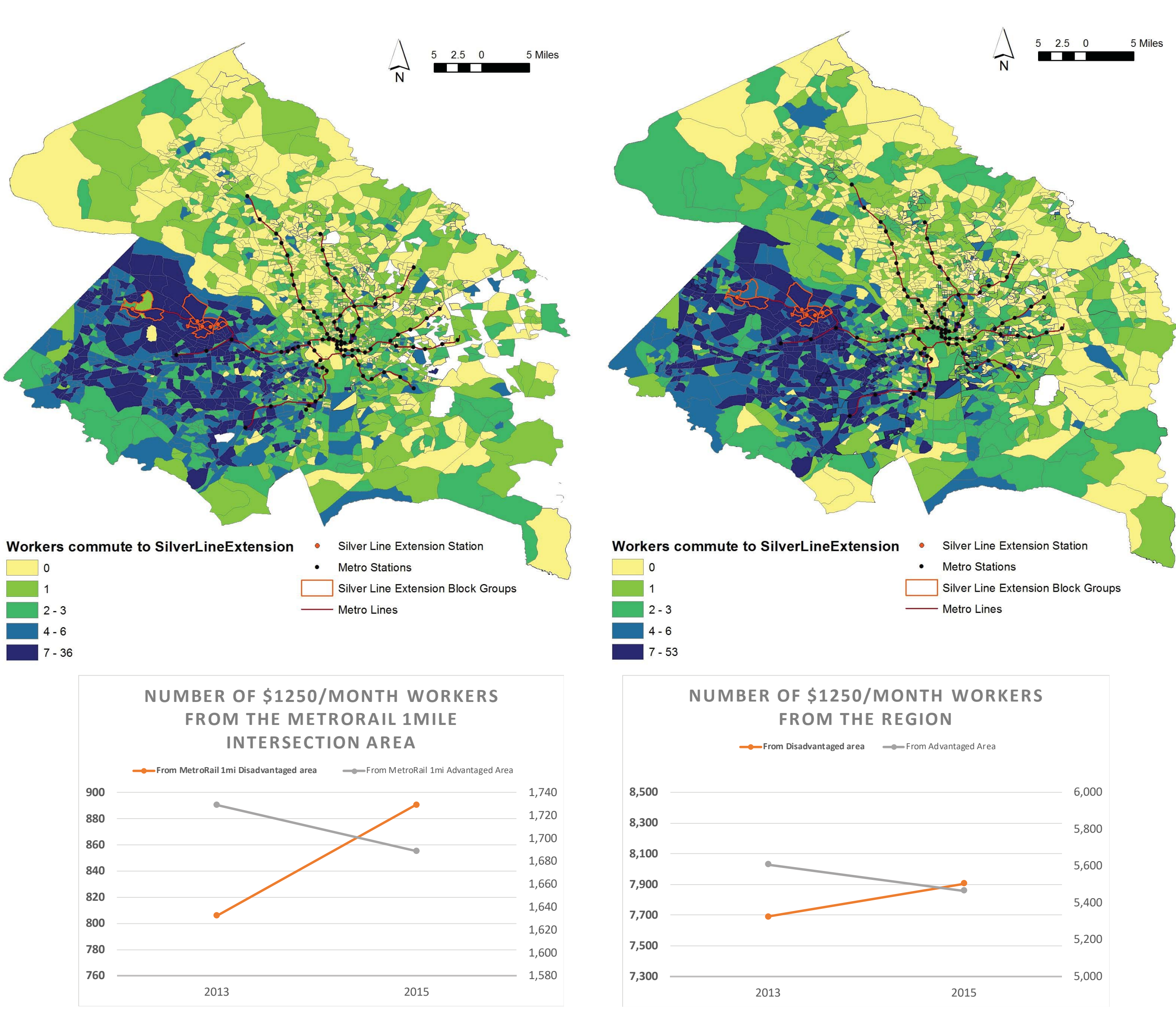


I separated 1 mile radius of MetroRail Station Census Block Groups. This process is to compare the areas that have access to Metrorail Station and those do not.

- To compare the difference between
1. Effect on MetroRail Station 1mile radius area VS. All Region
 2. Effect on the Disadvantaged area VS. the Advantaged Area
 3. Using the LEHD Origin-Destination Employment Statistics (LODES) data, I collected workers who work at the SLE job center, compared 2013-2015 change by the Residence Area Characteristics

3. Results

Origin of Workers to the SLE Job Center



- For Low income jobs (\$1,250/month or less)
- People who commute From 1) Disadvantaged and 2) MetroRail Station 1mile radius area To SLE increased 10 percent: '806 -> 891'
 - People who commute From 1) Advantaged area and 2) MetroRail Station 1mile radius To SLE decreased approximately 2 percent: '1729 -> 1689'
 - The result is statistically significant with
 - X-squared = 77.73, df = 1, p-value < 2.2e-16
 - 95 percent confidence interval: -0.10559073 -0.05905787